

CLAIMS

1) Process for indexing a preform (1) provided with at least one hooking lug (2) projecting outwardly from the body of said preform during a process of production of a container, for example of polyester resin, from said preform, comprising essentially a step of heating said preform before the principal step of blowing or blow-drawing of said preform during which said preform is moved on a transport support permitting its rotation about its longitudinal axis, characterized in that it consists, between said step of heating of said preform (1) and the step of blowing or blow-drawing of said preform (1), in mechanically blocking the rotation of this latter on its transport support in a precise angular position of at least one hooking lug (2), said angular position of the hooking lug (2) after blocking being predetermined as a function of a predetermined desired position of said hooking lug of said preform (1) after its transfer by means of a transfer gripper (210) into the mold (300) for blowing or blow-drawing.

2) Process according to claim 1, characterized in that the orientation of at least one hooking lug (2) of said preform (1) relative to said transfer gripper (210) during said transfer toward the mold (300) for blowing or blow-drawing remains unchanged.

3) Process according to claim 1, characterized in that the orientation of at least one hooking lug (2) of said preform (1) relative to said transfer gripper (210) during said transfer toward the mold (300) for blowing or blow-drawing is modified by rotation of the preform about its longitudinal axis.

4) Process according to any one of the preceding claims, characterized in that the hooking lug or lugs (2) are in the form of pieces whose portion connected to said preform (1) has a reduced cross-section relative to the retaining means forming the free end of said lug (2).

5) Process according to any one of the preceding claims, characterized in that two hooking lugs (2) are present at the neck of said preform (1).

6) Process according to any one of the preceding claims, characterized in that said preform (1) comprises two hooking lugs (2) diametrically opposed, forming a single piece with said preform.

7) Process according to any one of the preceding claims, characterized in that the hooking lug or lugs (2) have substantially a flat elongated shape in the shape of a bean with two rounded ends lying on circles.

8) Process according to any one of the preceding claims, characterized in that it consists, at the end of the process of production, in providing the formed container with a gripping and/or transport means belonging to or coming into engagement with the hooking lug or lugs (2).

9) Indexing station for practicing the process according to any one of claims 1 to 8, characterized in that it comprises principally a mechanical blocking means (100) adapted to block mechanically the rotation of said preform (1) after said heating step.

10) Station according to claim 9, characterized in that said mechanical blocking means (100) comprises a means (112) for immobilizing a hooking lug (2) of a preform (1) subject to the conjugated actions of drive means in translation and drive means (120) in rotation, said immobilization means (112) being adapted to hold said lug (2) in a substantially fixed position whilst said preform (1) continues to move in the direction of driving in translation by turning about its axis (X) so as to carry out substantially a pivoting relative to said lug, independently of the drive means (120) in rotation, said immobilization means (112) being adapted to free said lug (2) when the latter is in said precise angular position.

11) Station according to claim 10, characterized in that said means (120) for driving in rotation is deactivated, for a given preform (1), in a position of said preform in which a lug (2) of said preform is necessarily located immobilized in said immobilization means (112).

12) Station according to any one of claims 9 to 11, characterized in that said mechanical blocking means (100) is in the form of a rigid cam (110) against the surface of which a hooking lug (2) comes to bear.

13) Station according to claim 12, characterized in that said rigid cam (110) comprises a first flat surface (111) against which comes to bear a hooking lug (2) of a preform (1) subject to the conjugated actions of a means for driving in translation and a means (120) for driving in rotation, said flat surfaces can be parallel to the direction of drive in translation (T) such that said preform (1) is immobilized in rotation whilst remaining free to translate.

14) Station according to claim 12 or 13, characterized in that said rigid cam (110) comprises a retracted surface (112) forming a hollow adapted to receive a hooking lug (2) of a preform (1) so as to form an immobilization means adapted to hold said lug in a substantially fixed position whilst said preform continues to move in a direction of drive in translation (T) by turning about its axis (X) in a manner substantially to pivot relative to said lug.

15) Station according to claim 14, characterized in that said retracted surface (112) comprises a shoulder (113) against which a lug (2) of a preform (1) can bear so as to immobilize said lug until said preform will no longer be subject to the action of a means for driving in rotation.

16) Station according to claim 14 or 15, characterized in that said retracted surface (112) comprises a slope (114) inclined relative to the direction of driving in translation (T), said lug (2) being located in said hollow or reinforcement formed by said retracted surface (112) coming to bear against said inclined slope (114) until said lug (2) is in said precise angular position.

17) Station according to any one of claims 12 to 16, characterized in that said rigid cam (110) comprises a second flat surface (115) against which a hooking lug (2) of a first preform (1) comes to bear in said precise angular position, said second flat surface (115) extending parallel to the direction of driving in translation (T) such that said preform is immobilized in rotation whilst remaining free in translation.

18) Station according to claim 17, characterized in that said retracted surface (112) is located between said first (111) and second (115) flat surfaces, said retracted surface being disposed facing a zone (122) in which the drive means in rotation (120) of the preforms (1) is deactivated.

19) Station according to claim 17 or 18, characterized in that said second flat surface (115) is offset laterally outwardly relative to said first flat surface (111).

20) Station according to any one of claims 10 to 19, characterized in that the means (120) for guiding in rotation of the preforms (1) is an endless chain (121) whose drive portion circulates parallel to a direction of drive in translation (T) of said preforms (1) at a speed greater than the speed of driving in translation of said preforms, said endless chain being in engagement with toothed wheels for driving in rotation support means for the preforms so as to give rise to the rotation about their axes (X) of said preforms (1).

21) Station according to claim 20, characterized in that the zone in which the means (120) for driving in rotation of the preforms (1) is deactivated corresponds to a toothed wheel (122) for changing the direction of said endless chain (121).

22) Indexing device for practicing a process according to any one of claims 1 to 8 in cooperation with an indexing station according to any one of claims 9 to 21, characterized in that it comprises essentially a means (200) for driving in

limited rotation a preform (1) when this latter is gripped in said transfer gripper (210).

23) Device according to claim 22, characterized in that
5 said means (200) for driving in rotation is in the form of a movable abutment associated with said gripper (210) and adapted to come to bear against at least one of said lugs (2) so as to cause the rotation of said preform (1).

10 24) Device according to claim 23, characterized in that said movable abutment (200) has a U shaped structure and comprises two arms (201, 202) of different lengths adapted to come to bear against two diametrically opposed lugs (2A, 2B) when said preform (1) is in a predetermined angular position,
15 one or the other arm coming to bear against the corresponding lug to drive in rotation said preform (1) in said predetermined precise angular position in the cases in which said preform is spaced from this position in one or the other directions, respectively.

20 25) Installation for the production of containers by blowing or blow-drawing of preforms, characterized in that it comprises an indexing station according to any one of claims 9 to 21 and, as the case may be, an indexing device according to
25 any one of claims 22 to 24.